has occurred in captive settings, paving the way for major advances in biologging technology (i.e., animal-borne archival tags with various sensors) that helps bring traditional physiological and biomechanical laboratory techniques into the open ocean. Their large size and life history facilitates this transformative experimental approach, for example, where seals can be tagged and instrumented when they are hauled out on land or sea ice.

The author is one of the pioneers of biologging and this helps give readers a sense of not only how marine mammal studies have developed over the years, but also where the field may be headed in the future. Despite many advances in technology, marine mammals remain enigmatic and difficult to study, requiring the next generation of marine mammal biologists to engage with creative technical applications. This book will have a long shelf life in guiding students to better understand how marine mammals work and how they interact with their aquatic environment.

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YELLOWSTONE COUGARS: ECOLOGY BEFORE AND DURING WOLF RESTORATION.

By Toni K. Ruth, Polly C. Buotte, and Maurice G. Hornocker. Louisville (Colorado): University Press of Colorado. $75.00. xviii + 317 p.; ill.; index. ISBN: 978-1-60732-828-5 (hc); 978-1-60732-829-2 (eb). 2019.

This volume is a detailed compilation of decades of research on nearly everything you could want to know about cougars—survival rates, habitat preference, home range, prey selection—and how changes occurred with the reintroduction of wolves to the ecosystem. Anyone who might be curious about coexistence and competition among large carnivore populations (wolves, cougars, and grizzly bears) in Yellowstone National Park, and how such field research is conducted, would have their questions answered after reading this book.

Over the course of more than 300 pages, which includes appendixes and references, *Yellowstone Cougars* wastes no time getting right to the details, of which there are plenty. After a brief introduction to cougar evolution and a description of one of the most beloved national parks in the United States, Yellowstone, the authors justify their overall study design, and highlight the methods and tools used to conduct their work—both in the field and on the computer. Chapters are ordered based on the research trajectory, and ask questions such as: Did the population dynamics, space use, or predation behavior of cougars change after wolves were reintroduced? Is there evidence for competition or coexistence of these two carnivores in the Yellowstone ecosystem? Finally, are lessons here applicable to changing systems elsewhere? These questions are critical, given both wolves and cougars are on the move: cougars may be recolonizing the Great Lakes region, potentially putting them into contact with wolves. Similarly, wolves are now found farther west, in areas where cougars have dominated recently. This volume may be a prescient and informative guide in that regard.

The obvious strength of *Yellowstone Cougars* is the research effort itself—that the authors compiled, clearly, decades of research into a single tome is a huge feat. I see this work as an updated resource for answers about mountain lion ecology and the role they play within the large carnivore guild in Yellowstone. Perhaps a weakness of the work—or rather, a caution—is in the writing style: the underlying content is complex, and so at times the style is inaccessible, perhaps especially to readers who may not be steeped in the intricacies of wildlife ecology, statistics, and/or modeling. Challenging to read at times, I found myself rethinking some particularly dense sections (e.g., comprehending odds ratios of variables explaining variation in cougar kill sites), although the authors do a fair job of summarizing each section. For these reasons, this book is most suitable for conservationists, ecologists, and wildlife managers who are interested in using this information for academic study or for proactive, adaptive management of large carnivores. Casual readers interested in cougars, wolves, or Yellowstone may find this to be more information than they bargained for.

Yellowstone Cougars is, in a word, impressive. The authors of this volume, and chapter contributors as well, are titans in this area of research, and if that were not apparent before reading, it certainly is after you put the book down.

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BOTANY

PHOTOSYNTHESIS IN ALGAE: BIOCHEMICAL AND PHYSIOLOGICAL MECHANISMS. *Advances in Photosynthesis and Respiration: Including Bioenergy and Related Processes, Volume 45.*

Edited by Anthony W. D. Larkum, Arthur R. Grossmann, and John A. Raven. Cham (Switzerland) and New York: Springer. $199.99. xxxv + 514 p.; ill.; author and subject indexes. ISBN: 978-3-030-33396-6 (hc); 978-3-030-33397-3 (eb). 2020.

Most photosynthesis on Earth is performed by members of a heterogeneous group of organisms that we call algae, and so a book on the players and